



THE COMMUNICATOR SURREY AMATEUR RADIO CLUB



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VE7SAR

VE7RSC

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CLUB NET @ 8:00 P.M. Tuesday 147.36+ (110.9)

CLUB MAILING ADDRESS : 239 -7156 121 St. Surrey, B.C. V3W 0J6

The next meeting of the Surrey Amateur Radio Club will be held at 7:30pm on Wednesday September 9th 2009 at the Provincial Regional Emergency Operations Center (PREOC) located at 14275 96th Avenue Surrey V3 T 4M5 - Enter off 96th Talk in on 147.36+ (110.9) 443.775+ (110.9)

Please note the next meeting will be the second (2nd) Wednesday in September at the PREOC.

SARC Files Gaming Application to Upgrade Repeaters

From John Brodie VA7XB

In mid August, SARC submitted an application to the Ministry of Public Safety and Solicitor General for a Direct Access Grant under their

Gaming Policy to upgrade SARC's repeaters. The application has been prepared with a lot of hard work over the last few months in concert with SEPARS's application to upgrade its emergency facilities (described elsewhere). If successful, these applications together will raise Surrey's emergency communications capability to a standard that is second to none. Will we be successful? There is no guarantee of success, but your team has worked hard to produce a fully-researched case to support its request and to fulfill all the application requirements such as letters of reference, budgets, financial statements, Club bylaws, AGM minutes etc. The

recent Letter of Understanding between SARC and SEPARS has paved the way for this mutually beneficial initiative. We are fortunate to have the enthusiastic endorsement of the following organizations, who provided letters of support to both SARC and SEPARS for their respective applications:

- ? Emergency Management BC
(Provincial Emergency Program)
- ? Surrey Emergency Program
- ? City of Surrey
- ? Radio Amateurs of Canada

There are three components to SARC's application. The 2 m repeater upgrade consists of new radios, power supply, antenna and feedline including raising of the antenna higher on the tower. The 440 MHz repeater upgrade is similar, except that it will be moved from its present location in South Surrey to the same site as the 2m repeater. Both will have IRLP and Echolink. Coverage should be greatly enhanced throughout the Fraser Valley and Greater Vancouver.

Much thought was given to 220 MHz and its role in the overall scheme. One difficulty was that there are currently few manufacturers of 220 MHz equipment, however this obstacle was overcome and it is now proposed to have 220 MHz capability, though the location of this repeater may be different from the others. The ability to utilize 220 MHz will become apparent should a disaster occur and the other more commonly used frequencies are tied up with emergency or health & welfare traffic. Stay tuned for further developments.

JB

Hear Ye! Hear Ye!

Let it be known throughout the land -- and air waves -- that SARC Member in good standing and newly elected Vice President, Egon VA7EGO has, after diligent study and a modicum of stress passed his Advanced Ham Exam and has earned all the rights and privileges so bestowed by Industry Canada as well as the adulation of all those "Basic" Hams under him.... :-)

He now can now operate all bands, all modes -- WITH "BO" POWER!! [That means 1000Watts output] And....make anything he wants -- electronics-wise for Amateur Radio.... Unofficially, as an Advanced Ham, his credibility and social status within the hobby is now several degrees higher than Peasant Hams....hi hi (the CW laugh).

Of course....God-like status doesn't come until he can send/receive Morse Code at 18 wpm...unassisted....and get a two-letter call.....then we must bow in his presence.....

Congratulations Egon....

And now a word from your sponsor.....If anyone is interested in a CW course this fall, I will be starting one on two metres (USB) on or around 144.250 one or two nights during the week....for about 20 minutes a session. Once I get my DISC back from a certain young VE7CEF.....

73, Gary W. Skett, VE7AS
Examiner # 1549
2431 126 Street
S.Surrey, B.C. V4A 8H7

SARC FIELD DAY

RESULTS

Amanda Kirk VE7AEK and Dad VE7GRK



Bare bones info

Claimed Score	1,382
Bonus points	1,050

Submitted	<u>2,432</u>
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SARC operated a GOTA station this year and it was very successful with 6 new or inactive hams participating.

This year's Field Day was billed as a fun event and boy did it live up to its billing. We had new ops and some hams who just enjoyed being on HF again. The CW and SSB tents were manned most of the time as everyone had a chance to get involved.

SEPAR Bunny Hunt and BBQ

This years winner of the coveted and prestigious Crystal Bunny was Jan Vozenilek VA7VJ. Jan found all three bunnies, yes all three. This years hunt was made more interest-

ing with the addition of 2 more bunnies for a total of three (3). The three bunnies were timed to transmit at 2 to 3 minute intervals and each had its own CW ID. It was great fun and the weather cooperated with some clouds but generally very pleasant.

The hunt and the BBQ were both held at Crescent Park which turned out very well.

Bunny Hunt Coordinator Anton James VE7SSD presenting Jan with the trophy.



Jim Hurrell, VE7HUR Donates 3 bunnies and controller to SARC -





With Gary W. Skett, VE7AS

In this episode of AA, we'll look at making an improved version of the standard copper cactus J-pole. An antenna that works on the same principal as the J-Pole – but better!

The Skeleton Sleeve Fed Monopole [SSFM] is an excellent [true] omni-directional 50-ohm impedance, low cost, rugged, base or portable antenna. It can be fabricated in a few hours using about \$12 worth of aluminum stock [from MetalMart] and a \$9.75 3/8" stud mount [available from Bill at Burnaby Radio.]

This antenna is a $3/4\lambda$ radiator with $1/4\lambda$ stubs, so one would expect the antenna to provide around 2.8 to 3.2 db gain over a simple $1/4\lambda$ ground plane, and works without any additional ground plane or radial system. Unlike the copper cactus J-Pole, it is a true omni-directional antenna and offers a near perfect "donut" shaped radiation pattern along its axes.

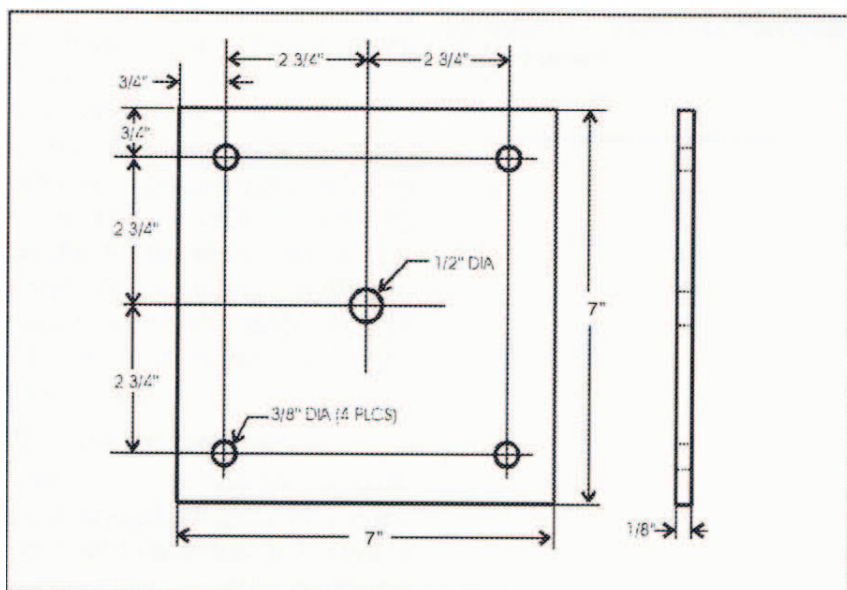
The key is to replace the single $1/4\lambda$ stub of the J-Pole with a complete cylinder of aluminum around the radiating element. A demanding task even for the seasoned homebrew Ham without special tools and shop facilities.....What? Doesn't everyone have a milling machine in their workshop...or a CNC machine? Gee....I suppose it would also be a bit difficult to attach the completed cylinder to the base, unless you can weld aluminum at home.....



The solution, and minimal requirement, is to place 4 matching stubs around the radiating element.

I have attached a diagram for the overall dimensions for the base, elements and mounting detail, although I generally use these for a "guideline" and tend to change things according to what is in my shop for material and how or where it's going to end up being mounted. I also like to drill and tap my threads and cut threads into my rod material as much as possible to lessen the need for another trip to the hardware store.

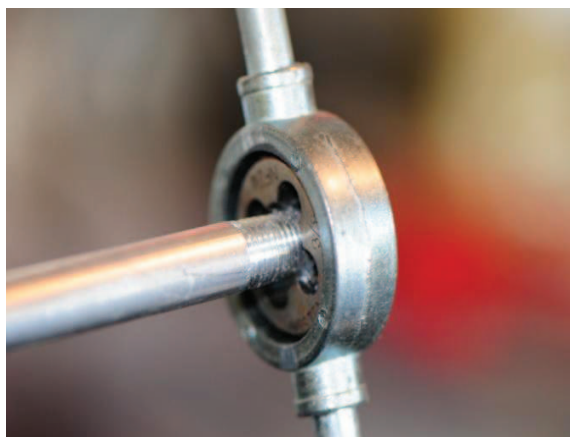
I started out by cutting a 7" square piece of aluminum from an old electrical panel cover. It's about 1/8" thick which worked fine, but in retrospect I would have liked to use 3/16" or 1/4" stock so it would hold a thread better. Doesn't take much to over torque the rod into the aluminum and strip the threads. Especially 3/8th by 24 threads needed to fit into a standard antenna mounting stud. When cutting your 3/8th by 24, use a [new] sharp die, some cutting oil and plenty of patience...the aluminum rod isn't kind to a heavy hand with this fine thread. You want to cut just enough thread to fit into the 3/8th stud mount.

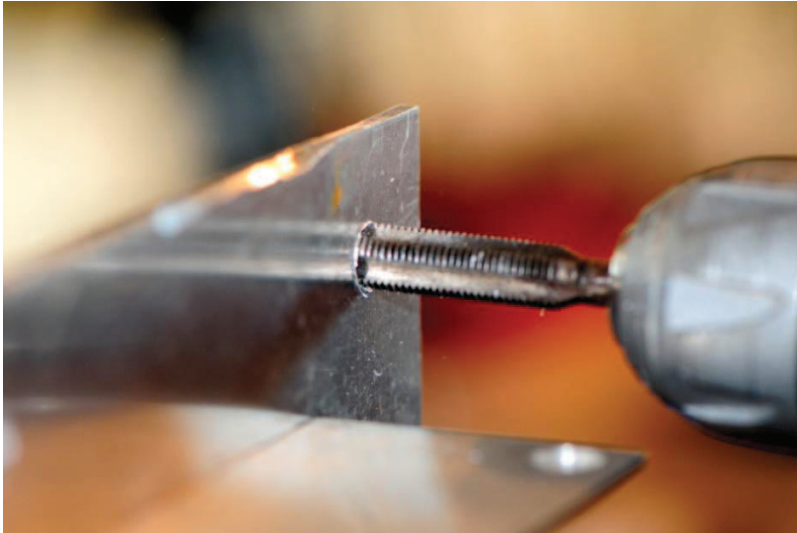


As you can see from the diagram(s), the measurements are fairly self explanatory. Just take your time and measure accurately, use a drill press [in a safe manner] (my legal department says I should mention that).

The 3/8" aluminum rod is available from MetalMart or the Metal Supermarket. A 12 foot length is around \$9.75 and that allows you to make all the elements and have some left over for another UHF antenna...buying stock from these two places is far cheaper than getting "hobby lengths" from the big box stores – which don't sell lengths long enough to make a single piece radiator anyway.

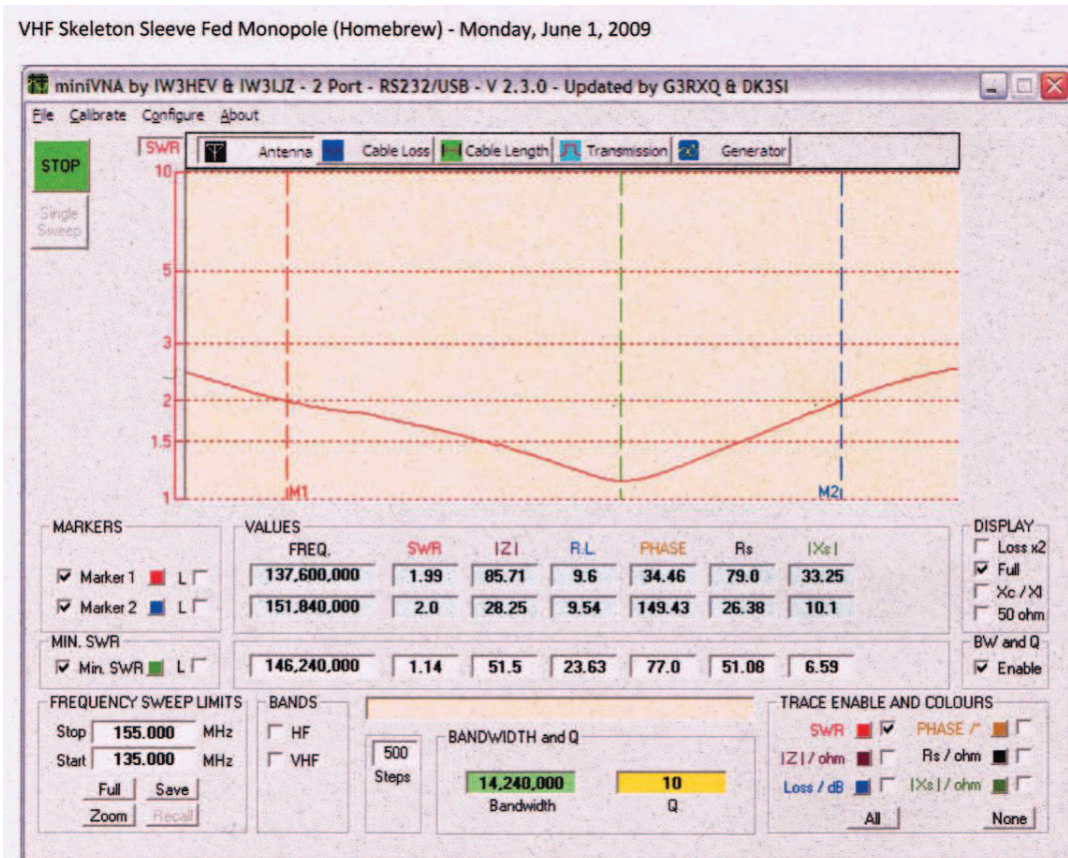
Drill the centre hole to fit this antenna mount and make sure you maintain an accurate measurement for the 4 stubs, especially from the centre hole. Rather than drill as indicated for a 3/8th rod, drill for 3/8" by 16 threads instead. Use a 16 course thread instead of the 24 fine thread required for the antenna stud mount and you'll have better success cutting and keeping the threads in tack – both in the plate and on the rod. 3/8" by 16 is also a more common tap & die too, so it will be easier to locate. I had to buy a 3/8" by 24 fine tap & die from Lordco, as I had a set of the other thread...3/8" by 18 is also a standard course thread, but 16 threads per inch appears to be more readily available here in Canada. Care needs to be taken when cutting threads into the rod and in the plate. Make darn sure you are straight and/or perpendicular or you will have 5 elements leaning in all sorts of different directions – and that just looks silly!



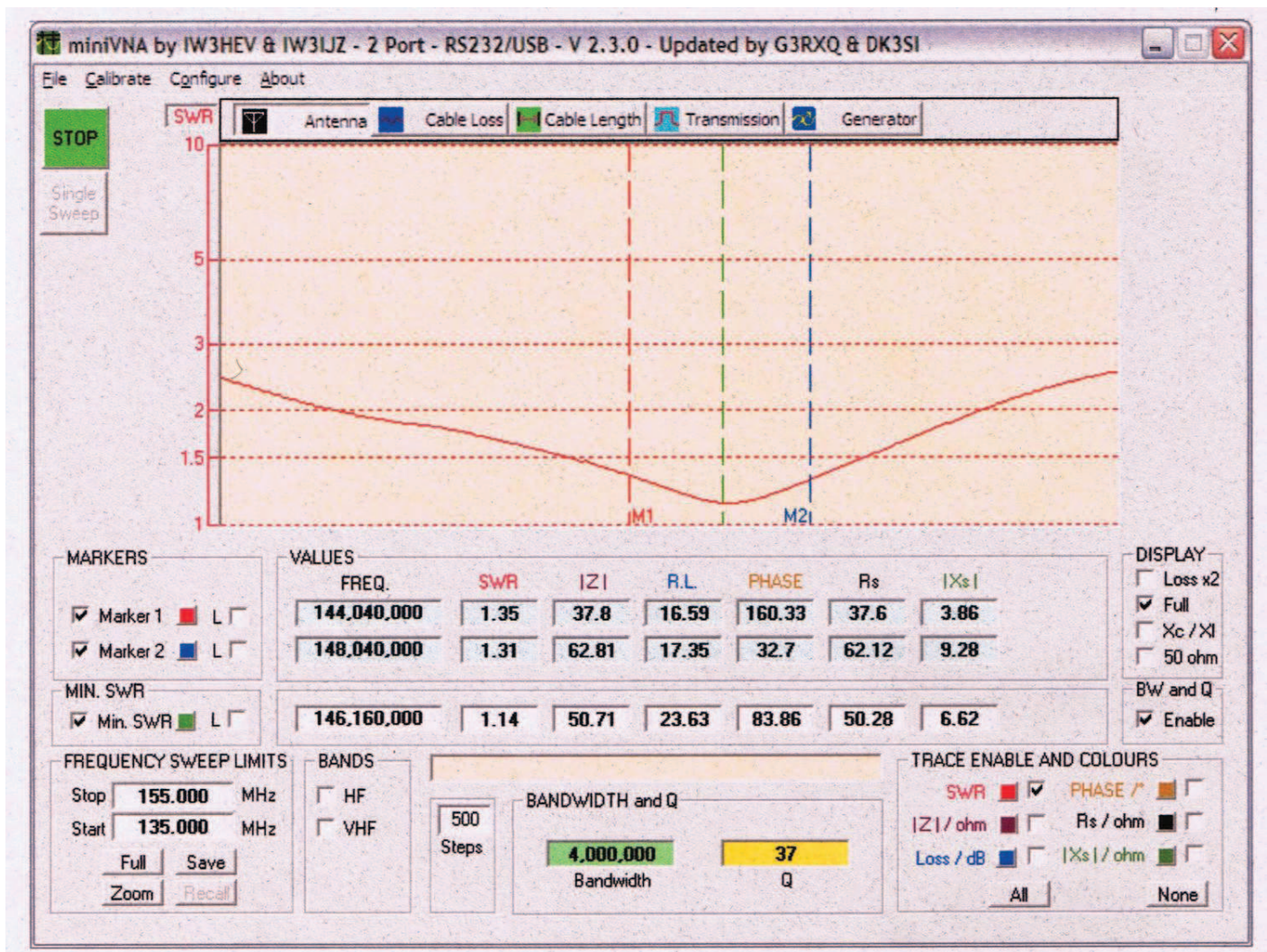


Care needs to be taken when cutting threads into the rod and in the plate. Make darn sure you are straight and/or perpendicular or you will have 5 elements leaning in all sorts of different directions!

ADJUSTMENTS: If the antenna is built to the specs as shown in the diagrams, it should resonate at or near 146 MHz. and provide a good match to 50 ohm coax. If adjustments are needed [because you either can't measure or cut accurately or can't seem to follow instructions... ☺] the 1 3/4" threads on the four 1/4λ stubs should provide enough range for adjusting the antenna to resonate closer to 146 MHz. However, if you wish to move the resonate point near the band edges some adjusting of the 3/4λ radiator will be required. The standard practice of making antenna elements slightly longer and then trimming them to the desired frequency is always a good practice.



With the aid of a MiniVNA, you can see the bandwidth is amazing. The 2:1 bandwidth is 14.24 MHz. wide – 137.6 (M1) to 151.84 (M2) MHz. Resonance is 146.240 with a measured SWR of 1.14:1. You can't get much better than that! No adjustments were made, this was made with measurements given on the diagram. Only the method of attaching the elements was different.



If we look at only the Ham band, as close as I could adjust the MiniVNA, we can see that from about 144 to about 148 the SWR was lower than 1.35:1 across the entire band. The impedance at resonance – 146.160 – was 50.71 ohms. That is fantastic for a homebrew antenna. Koodos to the designer of this little gem on an antenna!

As you may know, common mode current on the transmission line can be very detrimental to any antenna's operation, especially at VHF/UHF frequencies. At these frequencies the cable is several wavelengths long and the radiation resulting from the common mode current on that cable when combined to that of the antenna, produces an increase in the signal being launched at higher takeoff angles. Unless you are primarily interested in talking to airplanes or warming up the birds, a common mode choke should be used for better performance of any antenna fed with coax cable and the SSFM is no exception. You can make your own choke by merely coiling up 4-6 turns of your coax cable or better yet installing several inches of ferrite beads (a W2DU type balun) on your coax, near the antenna. Complete details on chokes can be found in the ARRL antenna handbook or on line. The same one you used for your copper cactus antenna will be fine for this antenna as well.

Weather proofing is essential – I'm sure you remembered to put an anti-oxidant compound on all your aluminum connections, or spot welded your elements to the plate and the stud mount for good electrical connection. Wrap your cable connection with splicing tape and a layer of Scotch 33. Hook up some LMR 240 or 400 and you're ready for DX!

